MULTIPLES FACTORS PRIMES

Keywords:	Multiple, factor, prime, divisible				
Definition / Description:	**Multiple:** a number that is in another number's times table	**Factor:** A whole number which exactly divides another whole number	**Prime:** A whole number that only has 2 factors, itself and 1.		**Divisible:** One number that can be divided exactly by another number
Knowledge points:	Multiples Times Tables	Lowest Common Multiple (LCM)	Factors Identify factors of a number	Find Highest Common factors of numbers	Prime numbers Use tests of divisibility to determine whether a number is prime
Knowledge point examples:	Multiples of 8 are 8, 16, 24, 32, 40, 48, 56, 64, …. Multiples of 10 are 10, 20, 30, 40, 50, 60, 70,…..	To find the LCM of 8 and 10 list the multiples of 8 and 10 and choose the smallest number which is in both lists Multiples of 8 are 8, 16, 24, 32, 40, 48, 56, 64, …. Multiples of 10 are 10, 20, 30, 40, 50, 60, 70,….. LCM of 8 and 10 is **40**	Factors of 12 are 1, 2, 3, 4, 6, 12 1 x 12 = 12 2 x 6 = 12 3 x 4 = 12 Factors of 30 are 1, 2, 3, 5, 6, 10, 15, 30 1 x 30 = 30 2 x 15 = 30 3 x 10 = 30 5 x 6 = 30	To find the HCF of 12 and 30, list all the factors of 12 and 30 and choose the highest number which is in both lists Factors of 12 are 1, 2, 3, 4, 6, 12 Factors of 30 are 1, 2, 3, 5, 6, 10, 15, 30 HCF of 12 and 30 is **6**	A prime number is a number that has **exactly** 2 factors. **7** 1, 7 Prime **14** 1, 14, 2, 7 Non-Prime Prime numbers are the building blocks for all numbers because every number has at least one **prime factor**. Large prime numbers are very difficult to find, this makes them useful for **encryption** like in banking and online messaging. Prime numbers from 1 to 100 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89 & 97
Linked Knowledge Maps	Indices				

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Keywords:	Multiple, factor, prime, prime factor, factor tree, times table, divide, integer, product, divisibility, divisor

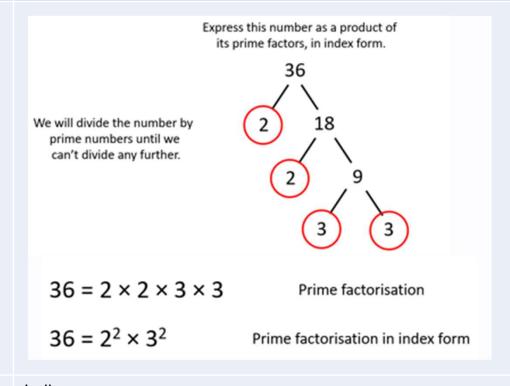| **Definition / Description:**	**Multiple:** a number that is in another number's times table	**Factor:** A whole number which exactly divides another whole number	**Prime:** A whole number that only has 2 factors, itself and 1.	**Divisible:** One number that can be divided exactly by another number

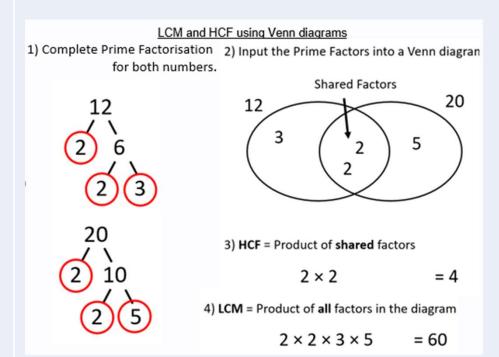| **Knowledge points:**	Prime Factor decomposition using factor trees. Every integer greater than 1 is prime or can be written as the product of prime numbers	HCF and LCM using Venn Diagrams

Knowledge point examples:

Express this number as a product of its prime factors, in index form.

We will divide the number by prime numbers until we can't divide any further.

36

36 = 2 × 2 × 3 × 3   Prime factorisation

36 = $2^2 \times 3^2$ Prime factorisation in index form

LCM and HCF using Venn diagrams

1) Complete Prime Factorisation for both numbers.   2) Input the Prime Factors into a Venn diagram

Shared Factors

3) **HCF** = Product of **shared** factors

2 × 2   = 4

4) **LCM** = Product of **all** factors in the diagram

2 × 2 × 3 × 5   = 60

Linked Knowledge Maps	Indices